FlyBy Math™ Alignment
Arizona Mathematics Standard Articulated By Grade Level
Grade 8

Strand 1: Number Sense and Operations

Concept 1. Number Sense
Understand and apply numbers, ways of representing numbers, the relationships among numbers and different number systems.

Standard	***FlyBy Math™* Activities**
PO 1. Locate rational numbers on a number line.	--Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes.

Concept 3: Estimation.
Use estimation strategies reasonably and fluently.

Standard	***FlyBy Math™* Activities**
PO 1. Solve grade-level appropriate problems using estimation.	--Predict outcomes and explain results of mathematical models and experiments.

Strand 2: Data Analysis, Probability, and Discrete Mathematics

Concept 1: Data Analysis (Statistics)
Understand and apply data collection, organization and representation to analyze and sort data.

Standard	***FlyBy Math™* Activities**
PO 1. Formulate questions to collect data in contextual situations.	--Conduct a simulation of each airplane scenario
PO 3. Determine the appropriate type of graphical display for a given data set.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
PO 7. Formulate reasonable predictions based on a given set of data.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
PO 8. Compare trends in data related to the same investigation.	--Compare airspace scenarios for both the same and different starting conditions and the same and different rates.
PO 9. Solve contextual problems using scatter plots, box-and-whiskers plots, and double line graphs of continuous data.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

Strand 3: Patterns, Algebra, and Functions

Concept 4: Analysis of Change
Analyze change in a variable over time and in various contexts.

Standard	*FlyBy Math™* Activities
PO 1. Identify the slope of a line as the rate of change (the ratio of rise over run).	--Interpret the slope of a line in the context of a distance-rate-time problem.

Strand 4: Geometry and Measurement

Concept 3: Coordinate Geometry
Specify and describe spatial relationships using coordinate geometry and other representational systems.

Standard	*FlyBy Math™* Activities
PO 1. Use a table of values to graph a linear equation.	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system.
PO 3. Determine the distance between two points on a number line.	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.

Concept 4: Measurement - Units of Measure
Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements.

Standard	*FlyBy Math™* Activities
PO 6. Solve problems using ratios and proportions, given the scale factor.	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.

Strand 5: Structure and Logic

Concept 1: Algorithms and Algorithmic Thinking
Use reasoning to solve mathematical problems in contextual situations.

Standard	*FlyBy Math™* Activities
PO 1. Describe how to use a proportion to solve a problem in context.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.